

ing. Any nitrobenzol, however, which has not been absorbed in a given case should be removed from contact with the body as completely and quickly as possible. Bleeding and transfusion seem logical therapeutic procedures for the most severe cases.

A NEW INTESTINAL TUBE WITE REMARKS ON ITS USE IN A CASE OF ULCERATIVE COLITIS.

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ABOUT a year ago I¹ described an intestinal tube by means of which it is possible to reach the entire small intestine and also the large bowel for diagnostic and therapeutic purposes. The tube having a length of 15 to 20 feet, and being quite thin (8 mm. circumference), does not permit its employment for aspiration purposes. Inasmuch as it is not permissible to have more than 60 cm. of the tube enter the digestive tract, before the capsule end has passed the pylorus, it is absolutely essential to demonstrate by the roentgen ray the position of the tube before allowing its further passage into the alimentary canal. This is a great disadvantage, making the clinician absolutely dependent in his work upon the roentgen-ray apparatus. The handling of the very long tube is another cumbersome drawback. Ultimately the length of the intestine being subject to great variations the intestinal tube had to have a length enough to fit all occasions, thus frequently exceeding the actual need of the individual case.

In order to obviate these drawbacks I have constructed a "jointed intestinal tube." It consists of the usual duodenal tube, the distal end of which is provided with a metal fitting and a female thread. Several 1-meter long tubes of the same caliber as the duodenal tube (8 F.) are each provided with tiny metal fittings at both ends, on one side having a female and on the opposite side a male thread. All the threads are of exactly the same size and each male fitting can be joined with a female thread. The distal end of the new tube is formed by a piece of rubber tubing (20 to 25 cm. long and about 20 F. caliber), containing on its proximal side a metal fitting with a male thread and on its distal side a stopcock. This distal end-piece can be attached either to the first duodenal tube piece or to each subsequent length of tubing added, thus forming a "jointed tube." (See Fig. 1.)

The jointed intestinal tube² permits aspiration at one and some-

¹ Einhorn, Max: An Intestinal Tube, New York Med. Jour., September 13, 1919.

² The jointed intestinal tube can be obtained at Geo. Tiemann & Co., 107 East 28th Street, New York.

times 2 meter-lengths, thus making it possible for the clinician to ascertain the position of the capsule in the duodenum and thus facilitates its introduction. Each subsequent length of tubing is added when its predecessor has entered the digestive tract. In order to avoid curling up of the tube in the stomach it is essential not to allow too much tubing to enter the stomach while eating and to ascertain the position of the tube before adding another length. This is done by pulling the tube a short distance from the mouth, 2 or 3 inches. If there is no resistance felt the tube is curled in the stomach. If a resistance is experienced the probability is that there is no curling. At this point a roentgen ray is advantageous, as it shows the course of the tube more exactly. A roentgen ray will also be required to decide whether the cecum has been reached, whenever it is necessary to do so, in order to apply treatment to the colon.

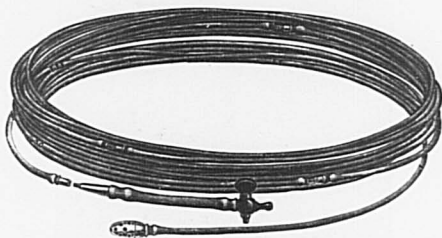


FIG. 1.—The jointed intestinal tube.

By means of the jointed intestinal tube the following case of probable ulcerative colitis has been successfully treated by lavage of the colon from above.

January, 1920. S. G., about forty years old, has been suffering for the last two years from severe diarrhea. Colicky abdominal pains are frequently present, especially before a bowel movement. Patient has lost considerably in weight and strength.

Present Condition. Examination of the chest does not reveal anything abnormal. The abdomen is slightly bloated, the liver a trifle enlarged and there is a distinct tenderness all over the colon on slight pressure. The gastric contents show: HCl = +; Ac = 56; no blood. The stool shows presence of starch, mucus and blood. The bead test reveals: beads appear in the stool after twenty-six hours; three-fourths of a potato, half fat, trace of thymus (no nuclei) present. Patient looks pale and complains of abdominal discomfort, lack of appetite and disturbed sleep. On an average he has six to eight movements during the day and four to six during the night.

Patient was then treated by me at the Lenox Hill Hospital for

a few weeks with tannin-agar, taka-diastrase and a regulated diet, also bowel irrigations through the rectum, with some benefit, and sent to the mountains, where he stayed about two months. During May, 1920, patient returned to the city with an exacerbation of the previous symptoms.

A reëxamination showed practically the same findings as stated above. The diagnosis appeared to be severe ulcerative colitis. Inasmuch as the usual methods of treatment failed to accomplish the desired result, it appeared worth while to try washings of the bowel from above. Up to now for this purpose an appendicostomy or cecostomy would have to be first performed. With the intestinal

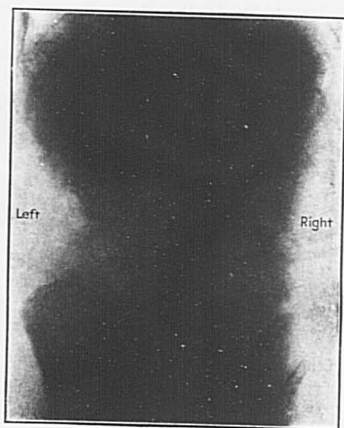


FIG. 2.—V 21, 1920. Roentgen-ray photograph of patient S. G., with the intestinal tube in the digestive tract. The capsule end of the tube is visible in the lower part of the duodenum.

tube at hand it was decided to try lavage of the colon from above by means of this instrument, thus obviating, if possible, the operation. Accordingly the jointed intestinal tube was introduced on May 20, 1920. As soon as the first part entered the duodenum (Fig. 2) the second joint was attached. On May 23, the third joint was added. A roentgen-ray picture showed the capsule end of the tube in the cecum (Fig. 3). Lavage of the intestine with a weak solution of carbonate of calcium (0.5 per cent.), employing a quart twice daily, was instituted as soon as the second joint had been attached, and kept up for about two weeks. Patient was nourished in the usual way by the mouth, partaking of the customary anti-

diarrheic diet. Soon after instituting this regimen the patient felt considerably relieved. The abdomen was not bloated, his appetite grew better and there were three or four movements daily. About a week later there were two or three movements daily, well formed, not containing any blood or mucus.

Wishing to have a roentgen-ray picture of the intestinal tube demonstrating the position of the entire intestinal tract, including the large bowel, a fourth joint was attached on the evening of June 5, 1920. The following day the capsule end of the tube appeared in the stool, hanging outside of the rectum. Desiring to demonstrate the location of the entire instrument with the capsule in the

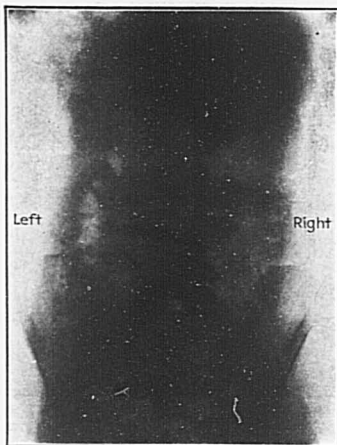


FIG. 3.—V 24, 1920. Roentgen-ray photograph of same patient shows the capsule end of the tube in the cecum.

digestive tract, I pushed it back into the rectum and had the patient roentgen rayed the following day, after injecting a bismuth mixture through the intestinal tube (Fig. 4).

In order to rid the patient of the instrument, the distal part with the stopcock was detached. The tube was tied tightly at the lips and allowed to slip into the stomach. Two days later (June 9) the whole tube appeared in the stool. During the entire time of treatment the patient experienced no pain or discomfort from the presence of this foreign body in his digestive tract.

It is thus evident that the intestinal tube can be used with advantage whenever this mode of treatment appears to be indicated.

In the case just reported the intestinal tube eliminated an operation—cecostomy or appendicostomy—which in similar instances is frequently done and effected great improvement—if not a cure.

Another point of interest regarding the penetration of the intestine by tubes is the rare event described by Dr. Palefsky,³ when the capsule-end of the duodenal tube (about 1 meter long), although the distal part was still at the lips, appeared through the rectum of a patient at the Montefiore Home. Palefsky explains this as string-

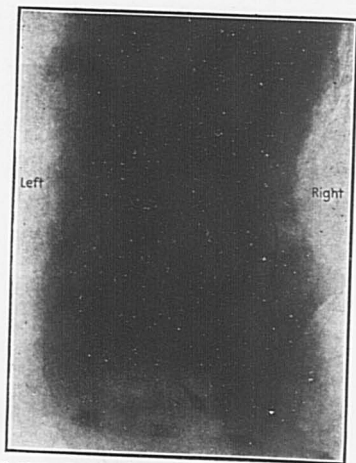


FIG. 4.—VI 7, 1920. Roentgen-ray photograph of same patient after filling the intestinal tube with a thin emulsion of bismuth. The whole course of the small intestine and colon down to the rectum is made visible by the tube. The capsule end is noticeable in the rectum.

ing up of the intestine over the tube. I have never seen a similar occurrence with the duodenal tube. Whether Palefsky's explanation is correct or whether there was a communication between the beginning of the small intestine and the colon (fistula), thus shortening the route is difficult to say. At any rate the duodenal tube cannot replace the intestinal tube, when in some instances a special diagnosis or treatment of the small intestine or colon is demanded. The jointed intestinal tube is, therefore, deemed of value.

³ New York Med. Jour., April 18, 1912.